REVIEWS OF BOOKS

SEX AND INTERNAL SECRETIONS

Allen, Edgar (Editor). *Sex and Internal Secretions*. Baltimore, 1932. Williams & Williams. Pp. xxii+952. Price 45s.

In *Sex and Internal Secretions* we have a volume containing the most recent and up-to-date information on this important branch of endocrinology. There are few good books in existence on the physiology and biochemistry of sex, and those which have been published are somewhat limited in their treatment of the subject and are now sadly in need of revision. The above book is the combined work of twenty-one authors and was published to commemorate the ten years' service of the Committee for Research in Problems of Sex of the National Research Council, and to bring together all the knowledge and information within its particular field of interest. Each author writes on the subject to which he has devoted research and, as a result, every part of the work is more or less authoritative in character. As with all books of this type, consisting of chapters by many different people, there tends to be some unnecessary repetition, but the members of the Committee, particularly the Editor, Dr. Edgar Allen, must be congratulated upon the skill with which they have co-operated to reduce it to a minimum. The work is that of the American School of Sex Physiologists, but each author has been most liberal in his treatment of the subject and has given adequate mention and discussion of the excellent work done on this subject in other countries, particularly such researches as those of Butenandt in Germany, Lacqueur in Holland, and Parkes in England. It is lamentable, however, that such pioneer workers and authorities as H. M. Evans on the pituitary and G. W. Corner on the corpus luteum have not been included in this work.

The first four chapters of the book are by Lillie, Danforth, Bridges and Witschi respectively, and deal with the genetic and embryological foundations of sex and the rôle of the hormones in sex determination. Bridges gives a rather too detailed treatment of the genetics of Drosophila. Witschi follows this with a chapter called "Sex Deviation, Inversion and Parabiosis," and discusses the genetical and developmental factors in sex deviations in amphibians, fishes, reptiles, birds and mammals. He gives an account of his own experiments on parabiosis in amphibians and an excellent and critical review of the work on these forms, but fails to discuss the interesting results obtained by parabiotic studies in rats. This chapter unfortunately contains a large number of errors, particularly omissions in the legends of figures; for example, on page 195 (fig. 23) there are two diagrams but no distinguishing letters. The legend, however, refers to them as A and B. On page 197 the reverse happens —there are two diagrams A and B in Fig. 24, but nothing in the legend to tell us what they are. Unfortunately this is only one example of many similar errors.

Riddle follows Witschi with a rather unique chapter on metabolism and sex. He summarizes all the known work on this subject, and presents in fair detail his own researches in this field covering a period from 1912-1931. He advances the theory that maleness and femaleness are brought about not so much by the influence of the genetic and endorcrine factors involved, as by that of the rate of oxidation, there being a higher rate of oxidation in males and a lower one in females. This specific sex differential is held to be the initial and decisive element both in normal sex determination and in sex reversal. It is a theory not readily proved by experiment, for although it is easy to show that in the adult male there is a greater consumption of oxygen and a higher hæmoglobin content than in the female, it is not easy to show, on the other hand, that the chromosomes or genes exercise their influence on developing sexuality by

acquiring a higher oxidation rate to produce maleness in the case of the male and a lower one to produce femaleness in the case of the female.

The next two chapters of the book deal with the testis. Moore gives an excellent review of our knowledge of testicular activity in vertebrates, treating of amphibians, reptiles, birds and mammals. In the section on mammals he discusses at length the effects of castration and the biological tests used for the assay of the male hormone. This is one of the best chapters of the book and is supplemented with a good bibliography. Koch is of necessity limited in his review, and confines himself mainly to the discussion of methods of extracting the hormone from the testis and its biological assay.

Following the two chapters on the testis and male hormone are two dealing with the ovarian follicular hormone; Allen describes the reactions in the normal animal and Doisy discusses the chemistry. Allen's review, although accompanied by a good bibliography, is long and not sufficiently critical. Doisy, on the other hand, has been rather concise in the treatment of his subject. He has given a fair review of the biochemistry of "theelin" (keto-hydroxy-oestrin) but has given too scanty a mention of "theelol" (tri-hydroxy-oestrin). In the light of the recent work of Butenandt, Lacqueur and co-workers this chapter already needs revision.

In the chapter on the corpus luteum, Hisaw discusses clearly and briefly the part played by the corpus luteum in the normal oestrous cycle, the results obtained with extracts, and, finally the biochemistry of the active substance as well as it is known at the moment.

Turner writes the chapter on the mammary gland and discusses in great detail (and with too frequent repetition) its normal growth and the development brought about by extracts. Unfortunately, however, he does not present clearly the evidence indicating an endocrine control of lactation and the share of the pituitary in this control.

Following this there is a combined chapter on plumage in birds by Domm, Juhn and Gustavson. This is an extremely interesting review of the knowledge obtained from operations on birds, of the relationship existing between the gonads and plumage, and of the use of the feather and comb as hormone indicators.

Hartman has a most interesting chapter on the transport and viability of ova and sperm in the genital tract. He gives a critical summary of all the conflicting experimental data on (1) the cause of ovulation, (2) the transport of the ova down the tubes and the part played in this transport by the tubes and uterus, and (3) the viability of the sperm in the female genital tract and their transport through the uterus and tubes.

The next three chapters are concerned with the pituitary, the first of which, by Smith, deals with the effects of ablation and implantation of the anterior hypophysis. Smith naturally discusses the rat in detail but shows how these results can be duplicated in rabbits and other animals. His chapter is concise and the information clearly presented. Engle follows with an account of the physiological effects of pituitary extracts and pituitary-like extracts prepared from urine. He spends too much time in presenting modifications of the Aschheim-Zondek test for pregnancy—the most of which are merely minor differences in the technique of carrying out the reaction and of no great importance in a review of this kind.

A combined chapter by Severinghaus, Engle and Smith follows, in which Severinghaus discusses the histology of the pituitary and its changes during pregnancy and the reproductive cycle. Investigating the cytology of the pituitary is not an easy task, and from the mass of conflicting data on the subject it is evident that the majority of workers have not used quantitative methods in their studies, or employed a sufficiently accurate histological technique to distinguish between eosinophiles and basophiles. These are errors that certainly must be guarded against in future work. Smith presents in tabular form the chaotic mass of information of the thyroid-gonad and

adrenal-gonad relationship, but does not discuss it at length.

The last two chapters are the poorest in this otherwise excellent volume. The first of these is a verbose discussion called "Sexual Drive," by Stone, a psychologist, and his work is too psychological and not sufficiently scientific. The chapter could well have been reduced to one-third of its present length. Pratt follows Stone with a chapter on endocrine disorders in sex function in man. He, too, presents much unscientific material and tabulates many unrelated case reports. A book of this kind should not discuss the use of theelin in hæmophilia and anæmia until the hormone has been shown to have some value in these particular conditions.

The book contains a fair number of errors in spelling and bibliography, but these are almost inevitable and can be readily corrected when it is reprinted or re-edited. A work such as this, which aims at presenting the last word in sex physiology, must of necessity, to be of any value to the student, be constantly revised. If this is done, *Sex and Endocrinology* will prove to be our most authorative volume in this field.

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RACES OF MAN

Eickstedt, Egon Frh. v. *Rassenkunde und Rassengeschichte der Menschheit.* Stuttgart, 1934. Verlag Ferdinand Enke. Pp. 936, with more than 600 illustrations and 8 coloured maps. Price RM. 76.50.

"RACE CULTURE" is the Third Realm's pet science, but not all German race books are scientific. Many are propaganda literature or the philosophical camouflage of political practices—a reason for the widespread mistrust of German race culture in countries uncontaminated by the Nazi spirit.

The book under review is not in this category. Professor von Eickstedt is a real scientist and earnestly tries to avoid trespassing into the non-scientific field. Apart from a few sentences in the final chapter, he refrains completely from all political observations. It is probable that under other conditions even these few sentences would have remained unwritten. Von Eickstedt also draws a definite line of demarcation between himself and the "popular pamphleteers," who have "ill-treated anthropology almost habitually."

The race problem must be treated primarily from the zoological point of view. "Race" is defined by von Eickstedt as a "group of individuals showing a characteristic combination of normal and hereditary somatic traits with a limited variation." The more single traits taken into consideration, the more are different races that can be described. Earlier attempts at such classification are, of course, only of historical interest, although Blumenbach's Caucasian (1806) has not yet disappeared from all text-books. In the principles of his race scheme von Eickstedt goes back to the ideas of T. H. Huxley (1863); whereas among newer writers W. C. Ripley and A. C. Haddon seem to have influenced him much.

Mankind is divided into four sub-species, among whom the primitive australoids are contrasted against the progressive types: negroids, mongoloids and europoids. These big groups are sub-divided into a number of extinct and thirty-six living races. The races are split up into sub-races, local forms, and tribal types, and are linked together—as are the big sub-species—by mixed types, contact forms, and intermediate groups. So the idea of race loses its rigidity and becomes more adapted to the conditions of real life.

Professor von Eickstedt does not confine himself to the species Homo sapiens. The scope of his work covers the whole family of the Hominidæ. The Neanderthal man and the different forms of Præhomo are dealt with extensively. After a long introductory chapter the book is divided into four parts, treating of Asia, Europe, Africa and the New World (America, Australia and Oceania). Each part begins with a description of the physical characters and the